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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,354	11/18/2004	Hubert Ott		5984

7590 02/28/2007  
W. D. Breneman  
3150 Commonwealth Avenue  
Alexandria, VA 22305

EXAMINER
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SCHNEIDER, CRAIG M

ART UNIT	PAPER NUMBER
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3753

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/28/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/505,354	<b>Applicant(s)</b> OTT ET AL.	
	<b>Examiner</b> Craig M. Schneider	<b>Art Unit</b> 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 1/10/07.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/19/04 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because Figure 1 should show the grid structure that is needed in a drawing to depict the coil. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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3. Claims 1-26 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support for the limitation in claim 1 that the radial ribs are "tapering". Further "a single control coil" is a negative limitation that does not have clear support in the originally filed application.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "control coil" does not have antecedent basis to claims 1 or 2 and therefore the claim is indefinite.

***Claim Rejections - 35 USC § 102***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1-7, 11-13, 16-19, and 23-25 (as understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Heintz (2,983,278).

Heintz discloses a valve as seen in Figure 1 with two pole pieces (11 and 12), wherein at least one pole piece is provided with a first fluid line (42 and 34) and a valve seat (43), and wherein the first fluid line is connected by the valve seat with a valve chamber (area around 27 including 23), having a valve body (27) moveable between at

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least two switch settings the at least two switch settings disposed between the first valve seat and at least one other stop surface (36), wherein the improvement comprises a combination spacer element and guide having radially tapered ribs disposed between a valve chamber and at least one other stop surface the spacer element (24) providing positive axial and radial control over the valve body in all positions in the valve chamber the spacer element also determining the distance between a first valve seat and the at least one stop surface and a single control coil (18 or 17) for operating the valve body between the at least two switch settings (col. 1, line 49 to col. 2, line 72).

Regarding claim 2, wherein the first valve seat and the at least one stop surface are molded into a respective pole piece and the pole pieces are secured (13) directly to the spacer element.

Regarding claim 3, wherein the at least one spacer element has a fluid passage as seen in Figure 2.

Regarding claim 4, the valve further comprising outer connecting tubes (74 and 73) secured to at least one pole piece to carry fluid (col. 4, lines 17-21).

Regarding claim 12, the valve further comprising a permanent magnet (27).

8. Claims 1-3, 5-6, 10-11, 20, and 23-25 (as understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Staiger et al. (4,336,823).

Staiger et al. discloses a valve as seen in Figure 1 with two pole pieces (10 and 12), wherein at least one pole piece is provided with a first fluid line (11, 14, and 15) and a valve seat as seen in Figure 2A, and wherein the first fluid line is connected by the valve seat with a valve chamber (17), having a body moveable between at least two

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switch settings the at least two switch settings disposed between the first valve seat and at least one other stop surface, wherein the improvement comprises a combination spacer element (23) and guide having radially tapered ribs (29) disposed between a valve chamber and at least one other stop surface the spacer element providing positive axial and radial control over the valve body in all positions in the valve chamber the spacer element also determining the distance between a first valve seat and the at least one stop surface and a single coil (5) for operating the valve body between the at least two switch settings (col. 2, line 67 to col. 4, line 7).

Regarding claim 3, wherein the at least one spacer element has a fluid passage as seen in Figure 3.

Regarding claim 10, the valve further comprising an eccentric hole in a pole piece (12) for a second fluid line (15).

Regarding claim 20, wherein the pole pieces, the valve seat, the valve chamber, the valve body and the at least one guide piece is disposed in a tubular valve housing and the tubular valve housing is disposed in a control coil (5) as seen in Figure 1.

9. Claims 1-3, 5-7, 11, 20-22, and 24-25 (as understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Kühl et al. (4,511,118).

Kühl et al. disclose a valve as seen in the Figure with two pole pieces (4 and 6), wherein at least one pole piece is provided with a first fluid line and a valve seat (5 and 7), and wherein the first fluid line (8 and 9) is connected by the valve seat with a valve chamber (11), having a body (3) moveable between at least two switch settings the at least two switch settings disposed between the first valve seat and at least one other

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stop surface (5 and 7), wherein the improvement comprises a combination spacer element (2) and guide having radially tapered ribs disposed between a valve chamber and at least one other stop surface the spacer element providing positive axial and radial control over the valve body in all positions in the valve chamber the spacer element also determining the distance between a first valve seat and the at least one stop surface and a single control coil (14 or 16) for operating the valve body between the at least two switch settings (col. 3, line 4 to col. 4, line 11).

***Claim Rejections - 35 USC § 103***

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claim 8 (as understood) is rejected under 35 U.S.C. 103(a) as being unpatentable over Heintz in view of McMullen (4,437,815).

Heintz discloses all the features of the claimed invention except that the guide piece is made at least partially of plastic. McMullen discloses that sleeves, casing,

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plugs, and ports of valve armatures can all be made of plastic (col. 2, line 67 to col. 3, line 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize plastic as the material of construction as disclosed by McMullen onto the guide piece of Heintz, in order to decrease the manufacturing cost.

13. Claim 8 (as understood) is rejected under 35 U.S.C. 103(a) as being unpatentable over Kühl et al. in view of McMullen (4,437,815).

Kühl et al. disclose all the features of the claimed invention except that the guide piece is made at least partially of plastic. McMullen discloses that sleeves, casing, plugs, and ports of valve armatures can all be made of plastic (col. 2, line 67 to col. 3, line 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize plastic as the material of construction as disclosed by McMullen onto the guide piece of Kühl et al., in order to decrease the manufacturing cost.

14. Claim 9 (as understood) is rejected under 35 U.S.C. 103(a) as being unpatentable over Heintz in view of Tespa (4,590,962).

Heintz discloses all the features of the claimed invention except that the guide piece includes a filter element. Tespa discloses the use of a filter element (31) in a passageway as seen in Figure 2.



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It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the filter of Tespa into the valve passageways of Heintz, in order to retain any solid matter (col. 7, lines 12-20).

15. Claims 14 and 15 (as understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Heintz in view of Hunt (3,828,818).

Heintz discloses all the features of the claimed invention except that the permanent magnet is annular and is located on a projection of the pole piece that is tapered. Hunt discloses a permanent magnet that (32) that is annular in shape and is disposed on the valve seat area of the pole piece (10)(col. 2, lines 55-67).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the annular magnet of Hunt on the valve seats of Heintz, in order to decrease the electrical power required.

16. Claim 26 (as understood) is rejected under 35 U.S.C. 103(a) as being unpatentable over Staiger et al. in view of Hunt.

Staiger et al. disclose an electromagnetic valve article of manufacture comprising: a single control coil housing having a first end and a second end; a first substantially cylindrical pole piece having a first end and a second end disposed within the single control coil housing the first end extending to about the first end of the single control coil housing; a second substantially cylindrical pole piece having a first end and a second end disposed within the single control coil housing the first end extending to about the second end of the single control coil housing; a valve housing disposed intermediate the pole pieces; a valve body disposed in the valve housing in which the

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valve body moves between at least two switch settings operated by the single control coil; and a spacer element disposed between the second end of the first substantially cylindrical pole piece and the second end of the first substantially cylindrical pole piece to fix the size of the valve housing, the spacer element having inwardly tapering radial ribs wherein the inwardly tapering radial ribs positively guide the valve body in all locations in a valve chamber between the at least two switch settings. Staiger et al. does not disclose a first permanent magnet disposed at about the second end of the first substantially cylindrical pole piece, a second permanent magnet disposed at about the second end of the second substantially cylindrical pole piece, and that the valve housing disposed intermediate the first permanent magnet and the second permanent magnet. Hunt discloses using a permanent magnet at the valve seat.

It would have been obvious to one skilled in the art to put the permanent magnet as disclosed by Hunt at each valve seat and to make the valve out of a magnetic material onto the valve of Staiger et al., in order to decrease the electrical power required.

### ***Response to Arguments***

17. Applicant's arguments filed 12/11/06 have been fully considered but they are not persuasive. Applicant is arguing that Heintz does not anticipate the amendments to the independent claim 1. The examiner disagrees with this and would like to point out the ribs are clearly shown in Figure 2 and they are tapered to the edge of the valve chamber and further the ribs further provide radial and axial control over the valve body.

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The applicant is arguing that Staiger et al. does not disclose radially tapering ribs but the examiner disagrees with this and would like to point out that the ribs of Staiger et al. functionally do what the ribs of the applicant's invention does and further have the radially tapering structure as disclosed by applicant's originally filed application. The applicant is arguing that Kühl et al. does not have a rib that controls the radial and axial displacement of the valve body throughout the valve body's motion. The applicant asserts that this is the case when the valve body clears the guideway. The examiner respectfully disagrees with this. While it is obvious that the guideway (rib) needs to be bigger than the valve body (ball) in order to move, there is no place that the applicant is pointing to that would lead the examiner to believe that the ball is not supported throughout the entire movement by the guideway. Just by looking at the drawing alone would lead one to come to the conclusion that the guideway would and does support the movement of the ball throughout its movement. Further the ribs (2) of Kühl et al. are as much radially tapering as the ribs of applicants originally filed application.

### ***Conclusion***

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a):

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig M. Schneider whose telephone number is (571) 272-3607. The examiner can normally be reached on M-F 8:30 -5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on (571) 272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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